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ABSTRACT

Previous research on the use of interaction process analysis and microteaching in teacher education indicates that these two methods of achieving specified behavioral changes in the teaching behavior of student teachers are at least as effective, if not more so, than traditional methods. Attention now turns to the different ways that interaction process analysis and microteaching can be used in supervising student teaching. A study was made of supervisor-student teacher conferences in four teacher education programs--two using interaction analysis and two using microteaching. Supervisory methods in the four programs were compared in terms of focus on process behaviors, focus on content, case study approach, data base used in analysis, rapport building attempt, formulation of lesson objectives, appeal to data for conclusions, and scope of conference focus. This analysis showed a substantial variation in supervisory conference procedures and supervisor behaviors from program to program within the interaction analysis and microteaching approaches. It is recommended that the results of this study be made available to supervisors of student teachers who wish to adopt some of the techniques studied. (An appendix contains bibliographies on interaction process analysis and microteaching.) (RT)

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Use of Selected Techniques for Supervising Student Teachers

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Summary

Supervisory approaches within the frameworks of interaction analysis and microteaching have been receiving growing attention from educators in recent years. This study examined and presented some of the current research relating to these concepts of supervision as applied to student teaching programs. Four supervisory conferences in each of four such programs were video taped for analysis by a panel of experts, and information about supervisory conference procedures and behaviors in these programs was presented. The following conclusions may be drawn from the results of this study:

1. Interaction analysis and microteaching have been successful in achieving specified behavioral changes in the teaching behavior of student teachers.
2. There is a substantial variation in supervisory conference procedures and behaviors from program to program within the interaction analysis and microteaching approaches.
3. Conference procedure and behavior varied less among supervisors within each program than it did among the programs examined.

It is recommended that the results of this study be made known to practitioners who work with student teachers. Dissemination may be effected in some of the following ways:

1. An abbreviated version could be distributed to members of the Association for Student Teaching.
2. Groups of practitioners wishing to utilize procedures or behaviors could consult with personnel involved in this study for assistance and training.
3. The universities whose programs were examined could be directed toward examination of the raw data from conference analyses for their self-study if they so desire.
4. Using the findings as a base, a training film could be prepared for use by supervisors of student teachers who wish to adopt some of the techniques studied.

I. Introduction

Historically, findings from educational research are not utilized by practitioners until considerable time has elapsed after the findings become available, and then their utilization is usually on a limited basis. The difficulties imposed by locating and interpreting research reports has maintained the gap between the appearance of results of research and their application in our schools. Supervisors of student teachers, especially supervising teachers in the schools, have had little opportunity for formal training in or information about effective supervisory techniques.

Supervisors of student teachers are confronted by many possible areas of concentration in their attempt to help them become more effective practitioners. The large number of areas worthy of attention arises from the complexity of teaching behavior which is brought about by the influence of factors such as the attitudes, knowledge, personality, ability and motivation of both student teacher and pupils. Supervisors of student teachers may choose to concentrate on these factors individually thereby hoping to influence the learning situation. However, for reasons of efficiency many supervisors have chosen to focus directly on the teaching behavior of student teachers and have used a wide variety of supervisory techniques for producing changes in that behavior when they thought it desirable to do so; these techniques have met with varying degrees of success.

Recognizing the importance of providing supervisors of student teachers with an analysis and interpretation of research findings concerning the effectiveness of supervisory techniques in changing teaching behavior, the present study was initiated. With this information available to them, supervisors might expand their repertory of supervisory techniques, increasing their number of alternatives and thereby their chances for effectiveness. The selection of the particular research reporting findings about supervisory techniques for analysis and interpretation through this study was made on two bases--significance and number of demonstrations yielding results which indicate applicability.

At the annual meeting of the Association for Student Teaching in February 1968, it was the judgment of the National Committee on Research that the research dealing with the areas of supervisory techniques used in microteaching and interaction analysis should be analyzed. The principal investigator was charged by the Committee with the responsibility for the formulation and execution of a plan to reach the objective of research analysis, interpretation and dissemination in the subject area of supervisory techniques used in microteaching and interaction analysis. The research reported here is the result of work by the principal investigator and the four consultants mentioned in"Acknowledgments."

Almost ten years have gone by since Ned Flanders developed his categories for interaction analysis. Modifications of the original categories (i.e. the VICS system) have been proposed and used as alternatives; many research findings indicate promising results in the use of interaction analysis to change the behavior of student teachers; work has been done in the analysis of non-verbal as well as verbal behavior. Nevertheless, implementation of research findings in the area of interaction analysis by supervisors of student teachers has been minimal. Information about the successes and difficulties experienced in the analysis of teaching behavior with its resultant effects on behavioral change will be presented later in this report for the consideration of supervisors. In the event that certain informed supervisors of student teachers decide to make use of systems of interaction analysis, the practices used with that technique should be available for their consideration, training and practice. Since different types of success in behavioral change have been realized under different situations with different supervisory approaches, one set of supervisory skills in interaction analysis is not sufficient for general applicability; therefore, various approaches to interaction analysis were examined.

Microteaching, while more recent in development than interaction analysis, has enjoyed much attention from theorists in student teaching programs. Demonstration programs indicating successes in promoting behavioral change have been examined during recent years. Research into microteaching is analyzed and interpreted in this report for use by individual supervisors of student teachers. Also, supervisory models used within the microteaching framework are analyzed and interpreted for supervisors of student teachers; moreover, specific supervisory approaches contributing to practical application of microteaching models are identified and analyzed.

II. Methods

In order to meet the objective of presenting research findings to supervisors of student teachers, Dr. Norma F. Furst wrote the portion of the "Results" section which interprets research in interaction analysis, and Dr. Robert F. Schuck wrote the interpretation of microteaching research.

The principal investigator traveled to the sites of four university programs identified in conference with the project consultants to video-tape supervisory conferences for subsequent analysis with project consultants. Four supervisory conferences were recorded on a Sony portable video-tape recorder at each site. The sites identified are as follows: Temple University, University of California at Los Angeles, Stanford University, and University of Illinois. (This report does not identify the universities when data obtained from them is analyzed). Letters similar to those in Appendix A were sent to appropriate university administrators; phone calls were made when necessary to clarify procedures. The supervisory conferences videotaped were primarily those already scheduled by university supervisors with student teachers on the dates of the principal investigator's visits. To reduce artificiality, the video-tape camera was focused on the conferees, recording was begun, and the principal investigator left the room until he was notified that the conference was concluded. No time limits were imposed; conferences ranged in length from eight minutes to fifty minutes. While on each campus, the principal investigator spoke with administrators and supervisors to determine the character and procedures of their student teaching program.

After the video-tapes were collected, the principal investigator convened with the project consultants to analyze the tapes. Each tape was seen twice. The observers listed those supervisor behaviors they felt were integral to the method of supervision employed. The principal investigator, with advice from consultants, drew up a composite list of supervisory behaviors for each program; he also conferred with consultants about means of dissemination of the findings.

At the time of this writing, it is not yet possible to obtain data about the characteristics of selected supervisors of student teachers as was originally hoped. The Association for Student Teaching is still working on such a study of characteristics; therefore, recommendations about dissemination were based on the judgment of the principal investigator and project consultants.

III. Results

Material in this section is presented in two parts; A. Interaction Analysis, and B. Microteaching. Each of these parts contains an introductory analysis of the supervisory technique followed by presentation of procedures used by supervisors in the university student teaching programs examined (Appendix B presents a comparative overview of conference technique in these programs).

A. Interaction Analysis - Introduction (see Appendix C for bibliography)

The recent history of both educational research and teacher training has seen the use of some new and innovative techniques and designs. One of the newer approaches has been the use of descriptive category systems as a tool for collecting specific, relatively objective data of teacher and pupil behaviors as they are manifested in classroom settings. Other research efforts have concerned themselves with using these behavior recording tools to determine teacher effectiveness by relating specific teaching behaviors to specific pupil outcomes. Studies have also been mounted to determine the effects of training teachers in the use of these techniques. (Efforts in this area have included training programs for both pre- and in-service teachers.)

This review will concentrate on those studies which were designed to teach the behavior recording (i.e., interaction analysis) technique of Ned Flanders (Amidon and Flanders, 1967) to pre-service educators.

The first project in which Flanders' interaction analysis technique was taught to undergraduate students was that undertaken by Hough and Amidon (1964) at Temple University. The subjects were student teachers in the secondary education program. The investigators taught interaction analysis (IA) to one group of student teachers, while the control group was trained in the application of learning theory (LT) to teaching. Both groups received two hours of lecture and two hours of laboratory experiences per week for one semester. In the control (LT) group, the laboratory exercises encompassed both learning theory type experiments, (e.g., nonsense syllables, gestalt figures, etc.) and role playing experiences in which students planned, executed and evaluated lessons which illustrated the use of learning theory principles.

The experimental group was trained in the use of the Flanders' interaction analysis technique as a tool for analyzing pupil and teacher behaviors in the classroom in a descriptive way. Their laboratory experiences consisted of practice in recording teacher-pupil interaction from audio tapes of classrooms. Skill in interpretation of the interaction analysis data (Matrix interpretation) was included. The role playing sessions for this group consisted of students attempting to control their behavior by predetermining the interaction pattern they wanted to achieve, executing the lesson and then analyzing the resultant interaction data. Further training was provided to give the student teachers practice in performing patterns that have been found to be related to pupil achievement and attitudes (Flanders, 1960).

In the report of their project, Hough and Amidon found that college supervisors rated the student teachers who had learned interaction analysis higher than student teachers who had been taught learning theory (based on final grades and final evaluation forms). They also reported that student teachers in the experimental group had undergone significant changes in a positive direction in their attitudes toward teaching as measured by the Teaching Situation Reaction Test. The control group showed no such significant changes in attitude. The changes in the interaction analysis group also seemed to be related to low scores on the Rokeach Dogmatism Scale. Thus, less rigid students (i.e., those with relatively more open belief-disbelief systems) who were trained in the use of interaction analysis tended to have more positive attitudes than did the others.

In another study, Kirk (1964) trained fifteen elementary education student teachers in the use of interaction analysis during several sessions of a student teaching seminar. Fifteen other student teachers participated in a traditional type of student teaching seminar. Teachers from both groups were observed in their classrooms. Kirk reported that the students in the experimental group tended to talk less and give fewer directions than those in the traditional group. The IA teachers also responded more often to pupil-initiated questions with a question. Moreover, by the end of student teaching, they seemed better able to resist the tendency to become more direct than did the control group. Pupils of the experimentally trained student teachers saw these teachers as becoming more indirect in their behavior and talking less as the semester progressed. These pupil perceptions of their student teachers did not exist in the control group. Kirk's experimental student teachers also used more varieties of behaviors, indirect at times, direct at other times, than did the control teachers. Kirk further found that subjects in both groups tended to become more like the "average" social studies teacher studied by Flanders (1960) than like the "indirect" teachers as time progressed during the semester.

Furst (1965) did a follow-up study to the Hough-Amidon (1964) experiment. She observed student teachers in secondary schools who had been involved in courses similar to the original "learning theory and interaction analysis" project. She had three groups of student teachers, one taking the LT course concurrent with student teaching, one taking the IA course concurrent with student teaching, and the last having had an IA course prior to their student teaching. Whereas Hough and Amidon used supervisors' ratings and paper-and-pencil attitude tests as criteria measures, Furst was mainly concerned with performance differences. She used the Verbal Interaction Category

System (VICS)- a modification of Flanders developed by Amidpn and Hunter (1966) to observe the student teachers' classroom behaviors.

In general, her findings showed that students in the experimental sections (IA trained) used more total acceptance of pupil ideas and behaviors and less total rejection of pupil behaviors than did the learning theory-trained student teachers. Students trained in IA also tended to use more than token acknowledgment of pupils' ideas and spent more time clarifying and using their pupils' ideas. Although there were some differences in teaching behaviors, depending on the timing of the interaction analysis training, the differences noted here were the same for both experimental groups when compared with the control group.

Romoser (1964) studied differences in the attitudes of education students who had three class periods of instruction in interaction analysis. She found that even such a short period of training changed their attitudes toward "lenient tolerance" as measured by scales she developed from the Minnesota Teacher Attitude Inventory and the Psychological Inventory Flexibility Scale.

Zahn (1964) investigated the effects of using interaction analysis in supervision. His work involved elementary education majors. In the experimental group, student teaching supervision was done using interaction analysis data as feedback. The control group had conventional supervision and traditional student teaching seminars. Zahn found that at the end of student teaching the student teachers who had been supervised with interaction analysis reflected more positive attitudes toward teaching than their own cooperating teachers and the student teachers who had been supervised by conventional means. Undergraduates whose cooperating teachers held less positive attitudes toward teaching than their own were better able to resist this negative influence when they had been supervised with IA. Open belief systems also seemed to be a factor in the more positive attitude changes.

Gellman (1968) did a follow-up study of a sample of Zahn's students after they had completed a full year of regular classroom teaching. He found that these attitude differences persisted between the control and experimental group. He also found behavioral differences as recorded by IA data collected from tapes made in the classrooms of the teachers. The teachers who had originally learned interaction analysis as undergraduates showed more indirect patterns of behavior than did the others with no further instruction.

Moskowitz (1966) studied the effects of training in interaction analysis on the attitudes of student teachers and their cooperating teachers, as well as the effects on their cooperating teachers' classroom behavior. Her secondary level student teachers were trained in much the same fashion as the groups reported by Furst (1965) and Hough and Amidon (1964). The training for the cooperating teachers consisted of ten short sessions in which the use of IA in supervision was stressed. Moskowitz found that trained cooperating teachers showed significantly more indirect patterns of teaching. The group composed of IA trained student teachers working with IA trained cooperating teachers also showed significantly more positive perceptions of the teacher-student teacher relationship.

A large scale project was undertaken at the Ohio State University (Hough, 1965; Hough and Ober, 1966; Lohman, 1967 and Hough. Loman and Ober, 1969) with a junior course in general methods for secondary education majors. This study employed a complicated design with a number of different treatment variables. In one type of class, students were taught the basic concepts of interaction analysis and were given practice in the use of a variety of teaching behaviors in a series of micro teaching episodes (using peers rather than children). Two weeks of the semester were devoted to observation and participation in public schools. Students were assigned to classrooms in pairs for the purpose of observation and mutual feedback.

The second group of college classes received training in analyzing teaching behaviors without using specific category systems. Similar micro teaching and school experiences were provided. Students were encouraged to use the results of the class discussions of analysis of audio tapes to discuss their own teaching.

With similar instructional techniques, other groups of students received instruction in human relations and/or participated in dyadic instruction using the Human Development Institute's programmed materials.

During the last phase of the courses, students planned, taught and evaluated a half hour simulated micro lesson. Interaction data for these lessons were collected using a thirteen category modification of the original Flanders' instrument.

Students in the course which had interaction analysis as its focus demonstrated more praise and encouragement and more acceptance of and clarification of student ideas. They gave fewer directions and used less criticism than students in the other groups. Furthermore, they used less corrective feedback and solicited less student response which was directly in response to the teacher. Pencil and paper tests on human relations skills yielded no clear-cut results. However, differences in teaching behaviors as observed in the simulated teaching conditions clearly favored the group trained specifically in interaction analysis.

In order to test retention and transfer of teaching behaviors from the college classroom to actual classroom teaching, a representative sample of students from the two groups who had received instruction in analyzing behaviors (interaction analysis or unstructured observations) were followed into their student teaching the following year. Thirty of the original one hundred and sixty-eight students who had been trained in interaction analysis and thirty of the original group of two hundred and fifty-two students who had not had interaction analysis training were observed six times during their student teaching experience.

Analysis of the data indicated that, in general, the IA trained students continued to use more indirect teaching patterns than did the control group of students a year after the original instruction.

An intensive three-semester study of training in interaction analysis with secondary undergraduate students was done by Amidon and others (undated). Student teachers and cooperating teachers were trained in either interaction analysis or learning theory. They were divided into four groups: (1) student teachers trained in IA working with cooperating teachers trained in IA: (2) student teachers trained in IA working with cooperating teachers trained in LT; (3) student teachers trained in LT working with cooperating teachers trained in IA; and (4) student teachers trained in LT working with cooperating teachers similarly trained.

For the semester they were student teaching, the college seniors received six hours a week of instruction: 2 hours of lecture time, 2 hours of laboratory time and 2 hours of student teaching seminar time. The content and skills revolved around either IA or LT. The final report of this project includes an excellent, week by week summary of both courses together with a compendium of skill sessions, role playing exercises and sensitizing experiences used with both groups.

Cooperating teachers had received ten sessions of work in either principles of learning theory as they apply to supervision or the use of interaction analysis as a supervisory tool. Their training took place the spring prior to the beginning of the project which took place during the following fall semester. No follow-up cooperating teacher training was attempted during the three semesters of data collection.

College supervisors' ratings of the student teachers, pupil perceptions of the student teachers, data about student teachers' attitudes and teaching behaviors were all collected and analyzed. The only clear-cut conclusions which may be drawn from the results indicated that student teachers trained in interaction analysis used more indirect teaching patterns at the end of their student teaching experience than student teachers not so trained. This was true regardless of the training of their cooperating teachers. Null hypothesis regarding pupil perceptions, student attitudes and college supervisory ratings could not be rejected.

Simon (1966) used students from the Amidon group in her study of teacher behavior in favored as compared to non-favored classes. She found only one difference in the student teachers' behavior in the favored class: he tended to use more praise in this setting than he did when working with pupils he did not favor. However, she also reported a number of differences in student teaching behaviors due to training. Those student teachers trained in IA used more indirect behaviors in their favored classes than did the teachers trained in the more conventional fashion.

Johnston (1968) reported the results of a study with undergraduate secondary school student teachers, some of whom were taught IA and some who were not. These groups were further divided into students using IA feedback about their own micro taught lessons and those students who received traditional supervisory analysis of their micro teaching. MTAI data and behavior change data were collected. He concluded that self-supervision (using IA) tended to promote indirect teaching and higher scores on the MTAI. However, he found no significant relationship between teachers' perceptions of the percentage of their indirect behaviors and the actual observed behaviors in any group.

Regardless of the time involved or the intensity of instruction, these studies all have one common focus: the teaching of a methodology for collecting descriptive, relatively objective data within classroom situations. Most of the training designs also concentrated on helping student teachers plan, execute and analyze their own teaching behaviors. Some studies also prescribed teaching patterns and attempted to modify student teaching behaviors to be more consistent with theory and research in teacher effectiveness.

One of the exciting commonalities in the results cited is the fact that, in all cases, there were some significant differences in either attitudes or behaviors of students trained in interaction analysis when they were compared with students no so trained. It would seem that, when interaction analysis is used as a training device, "you get what you train for." This in itself is most unusual and certainly should be a great reward for the efforts of trainers.

How many college courses can claim any substantial transfer and/or retention?

However, a fair appraisel of the potential of this innovative training device calls for the discussion and consideration of at least three major areas of concern which are almost inextricably intertwined: (1) What are the optimal conditions for the most effective training? (2) What are the relationships or interrelationships of other factors in producing changes in teaching and/or teacher behaviors? and (3) (and most important) What repetoire of behaviors do we want to produce and/or change in teachers? This really means what are the most effective teacher behaviors in terms of pupil outcome measures.

The first area raises a host of questions which have yet to be answered. What is the optimum schedule of training? How many sessions? When? Who else needs to be trained? Cooperating teachers? College supervisors? Should supervision be entirely self-directed? Should audio and video tapes be used? What is the most efficient use of cooperating teacher and college supervisor?

Other questions along this dimension also come to mind. What differences are there on different criteria measures when pre-service teachers learn only the mechanical techniques of interaction analysis versus having skill sessions and behavior modification exercises? Further, should the concentration be on describing teaching, analyzing your own teaching or being given prescriptive teaching exercises?

How do you best train for varieties of behavior? Is training for expanded use of praise (category2) the same as training for expanded use of questions (category 4)?

Along with these questions, others need to be thought about. Although, all the previous studies indicated that the trained student teachers did produce more evidence of indirect teaching at the end of sessions than did the non-trained groups, other studies; e.g., Hill, Medley (1968) show that normally-supervised interns tend to change in that direction, too. This needs study.

The second area also needs careful researching and theory building. Why does interaction analysis training provide for transfer and retention? Hough (1965) suggests an "advance organizer" phenomenon. Can this be researched and what other theories need to be examined?

Other factors within the student teacher and the teaching situation need to be the focus of study. Rosenshine and Furst (1969) recently reanalyzed data from several of the studies in terms of the ability levels of the pupils being taught. The data analyzed in this light raise some serious concerns about the interrelationship of training and the ability levels of pupils. Some studies reported here and others (AERA - University of Florida, 1968 - 1969) have tried to shed light on teacher personality dimensions, teacher behavior and pupil product measures. This seems a most fruitful line of investigation.

Of most importance, however, is area three both from a research standpoint and from a moral, ethical view. In the final analysis, we want to produce effective teachers; that is, teachers whose students accomplish what society says they should. The entire question of adequately defining teacher effectiveness has yet to be answered.

Studies using interaction analysis training have been concerned with helping pre-service teachers have more positive attitudes and/or behave the way effective teachers "should" behave. This "should" has come from the few studies which have attempted to study the effect of teacher behavior on pupil products (e.g., Flanders, 1960; Furst, 1967; La Shier, 1966; Soar, 1966).

Do we really have enough data to be sure of these behaviors? What different patterns are most effective for different curriculum goals with different students? A comprehensive review and analysis of teacher effectiveness research by Rosenshine (in process) raises too many questions for this issue to be taken lightly by either researchers or teacher trainers. We must have much more information about effective behaviors before we may be comfortable with our efforts.

These questions and concerns should not be construed as being of a negative hue. On the contrary, much exciting work has been done and is being done in all these arenas. Training pre-service teachers in the use of interaction analysis is not even a decade old and has already shown promising results.

The challenge to answer the remaining questions is a great one. The potential for service is boundless and much help is forthcoming. The works cited herein represent just a few of the people involved in the efforts. Most of this work stemmed from the early efforts of Ned Flanders himself, and he is now in the process of finishing an unusually exhaustive work which presents not only further insights and theory into the problems but also suggestions for using more sophisticated and promising techniques for both the serious researcher and the teacher educator.

It is these two groups working together (or becoming one) that hold the promise for the future. In fact, thanks to interaction analysis for helping many a teacher educator become, at least, a quasi teacher-researcher!

Supervisory Conference Procedures

in Student Teaching Program Number One

This student teaching program provides extensive training for student teachers in the system of interaction analysis originated by Ned Flanders and expanded by Edmund Amidon and Elizabeth Hunter (1966).The system consists of seventeen categories which describe different kinds of teacher and pupil verbal behavior. To use the system, an observer (who may be the supervisor or the student teacher himself - if he listens to his lesson on audio tape) records, at three second intervals, the number of the category (1-17) that best describes the behavior occurring at that moment. The category numbers are recorded in columns from the top to the bottom of the page, thereby preserving the sequence of events; these numbers are then put into a matrix which allows for organization and interpretation through examination of percentages, totals, and ratios. After interaction analysis data has been obtained for a particular lesson, the supervisor and student teacher confer. The procedures presented below were drawn from an examination of four supervisory conferences in Student Teaching Program Number One.

List of Supervisor Behaviors in a "Typical" Conference (Program One)

1. Supervisor asks for student teacher goals.

2. Supervisor asks for student teacher planned procedure.

3. Supervisor asks for summary of behaviors from student teacher in interaction analysis terms.

4. Supervisor focuses on matrix.

5. Supervisor asks student teacher to compare goals with interaction analysis data.

6. Supervisor examines student teacher familiarity with locating aspects of teacher behavior on matrix.

7. Supervisor analyses matrix item by item by asking student teacher for interpretation.

8. Supervisor asks student teacher for reactions to data on feeling and action levels.

9. Supervisor asks for student teacher planned committment for future lesson behavior.

10. Supervisor asks student teacher for extension of interaction analysis data through application in techniques and procedures.

11. Supervisor asks for "any other comments" from student teacher.

12. Supervisor supports student teacher committments to interaction analysis.

Interpretative Expansion of Supervisor Behavior in the "Typical" Conference (Program One)

1. Demonstrated a great deal of rapport establishing behavior.

2. Directed questions to have students state goals-objectives of lesson.

3. Asked what interaction analysis patterns would be desired to help achieve goals-objectives.

4. Reviewed interaction analysis matrix with student to determine what patterns were dominant.

5. Asked students to analyze matrix and patterns.

6. Provided matrix interpretation for students

7. Focused actual patterns to what patterns students had expected.

8. Provided verbal and non-verbal support.

9. Asked student to analyze the classroom behaviors which would have resulted in matrix patterns.

10. Asked what unexpected behaviors appeared on the matrix.

11. Encouraged lesson analysis in terms of re-teaching and what changes student would make.

12. Raised issue of percentage of teacher-talk to student talk.

13. Made few judgmental and evaluative statements.

Analysis and Summary of Supervisor Behavior in the "Typical" Conference (Program One)

Supervisor behavior was very heavily oriented toward social-emotional, supportive-type climate dimensions, heavily rooted in questions about the data coming from the matrix of the teacher's own behavior. Student teacher "guided" through questions to make insights and inferences from matrix data. Pattern of supervision: What were your goals? How would you state them behaviorally (in matrix terms)? Let's look at the matrix. What do you see? What does it mean? Why might it have happened? What would you do differently next time? Supervisor is questioner, clarifier and summarizer of student teacher's ideas. Some attempt at practicing different behaviors by student teacher. Insights seemed to come in verbal behavior of student teacher with supervisor questioning, reflecting, and accepting.

Perhaps the most observable characteristic of the Program One conferences was the Socratic style of questioning. The supervisors usually began by soliciting the aim of the lesson and the desired style of the lesson from the trainee. Then the supervisor proceeded to go through a directed discovery process with the trainee using a data base focused upon the verbal behavior of the teacher as shown by the interaction matrix. The supervisor utilized the "shock" aspect in a kind, rewarding, unbiased manner to demonstrate to the trainee when necessary that desired verbal behaviors were not acquired. The depth of the verbal analysis from the data appeared outstanding even though the supervisors appeared rather impersonal in respect to goal-oriented behaviors toward the use of the data. Seldom were there any comments about content; the students were carried through a warm but objective analysis of their purposes and resultant verbal behaviors.

Supervisory Conference Procedures in Student Teaching Program Number Two

In this program student teachers are trained in the formulation of behavioral objectives. During a "pre-observation" conference, the student teacher and the supervisor reach an understanding of what pupil behavior the student teacher will seek in his lesson and what level (in terms of percentages of perfect pupil response) he will accept as evidence of success. While observing the subsequent lesson, the supervisor records data, usually in longhand writing, describing the interaction between teacher and pupil when the target pupil behaviors are involved. This data is then examined in a "post-observation" conference with the student teacher. Four post-observation conferences were examined to provide the behaviors described below.

List of Supervisor Behaviors in a "Typical" Conference (Program Two)

1. Supervisor reports data gathered.
2. Supervisor asks student teacher to interpret data.
3. Supervisor asks questions about data for student teacher interpretation.
4. Supervisor compares data with percentage expectations of student teacher.
5. Supervisor raises problem, gives solution.
6. Supervisor raises problem, probes for student teacher solution.
7. Supervisor encourages committment from student teacher for future teaching behavior.

Interpretative Expansion of Supervisor Behaviors in the "Typical" Conference (Program Two)

1. Asked for goals and objectives of lesson.
2. Directed discussion to student analysis of data on extent to which goals-objectives were achieved.
3. Focused conference on content.
4. Rapport establishing behavior-verbal and non-verbal.
5. Provided suggestions for re-teaching lesson.
6. Directed student to planning for next lesson.
7. Provided content alternatives.

Analysis and Summary of Supervisor Behavior in the "Typical" Conference (Program Two)

Business-like "guidance" through the data. The data coming from the pre-planning perceptions and the supervisor and student teacher's collection of student product data during the lesson.

Supervisor questions; many narrow questions of data interpretation, student teacher told what was "good," given suggestions for the future, both in terms of the actual lessons and his own perceptions of student ability. Student teachers use much of the current "language of education," some evidence of "compliant" behavior. The entire conference was very content oriented; little process was discussed.

Perhaps the most observable characteristic of the Program Two Conference was the focus upon the manipulation of content. The conference centered around the behavioral objective analysis and sought to utilize data on pupil achievement. There were frequent uses of phrases such as "gain feedback from the data," "state the behavioral intent of the lesson," "supply more opportunity for content practice," "we," and "do you suppose." In the conferences the supervisors tended to appear retiring but still talked nearly as much as the trainees, beginning first with feedback from the data and then going into specific suggestions on content manipulation. The reinforcement was somewhat automatic, and the behavioral references were few.

B. Microteaching - Introduction (see Bibliography in Appendix D)

Education performs its function in three distinct ways: first, in what it teaches; second, in how it teaches it; and third, in simply being the type of environment setting it is. Thus, the educative process may be viewed as having three basic dimensions: the substantive dimension or what is being taught; the behavioral dimension or the dynamics of the teaching-learning act; and the environmental dimension of the physical setting within which the learning act takes place. A conceptual model incorporating this view has been constructed by Lawrence Downy and appears in Figure 1.[1]

For many years people engaged in the process of teacher education have sought more effective and efficient methods of preparing college students to meet the challenges of their future professional roles. Recent technological developments have assisted in opening up new and exciting dimensions within teacher education.

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[1] Lawrence Downy, The Secondary Phase of Education (New York: Blaisdell Publishing Company, 1965), p. 88.

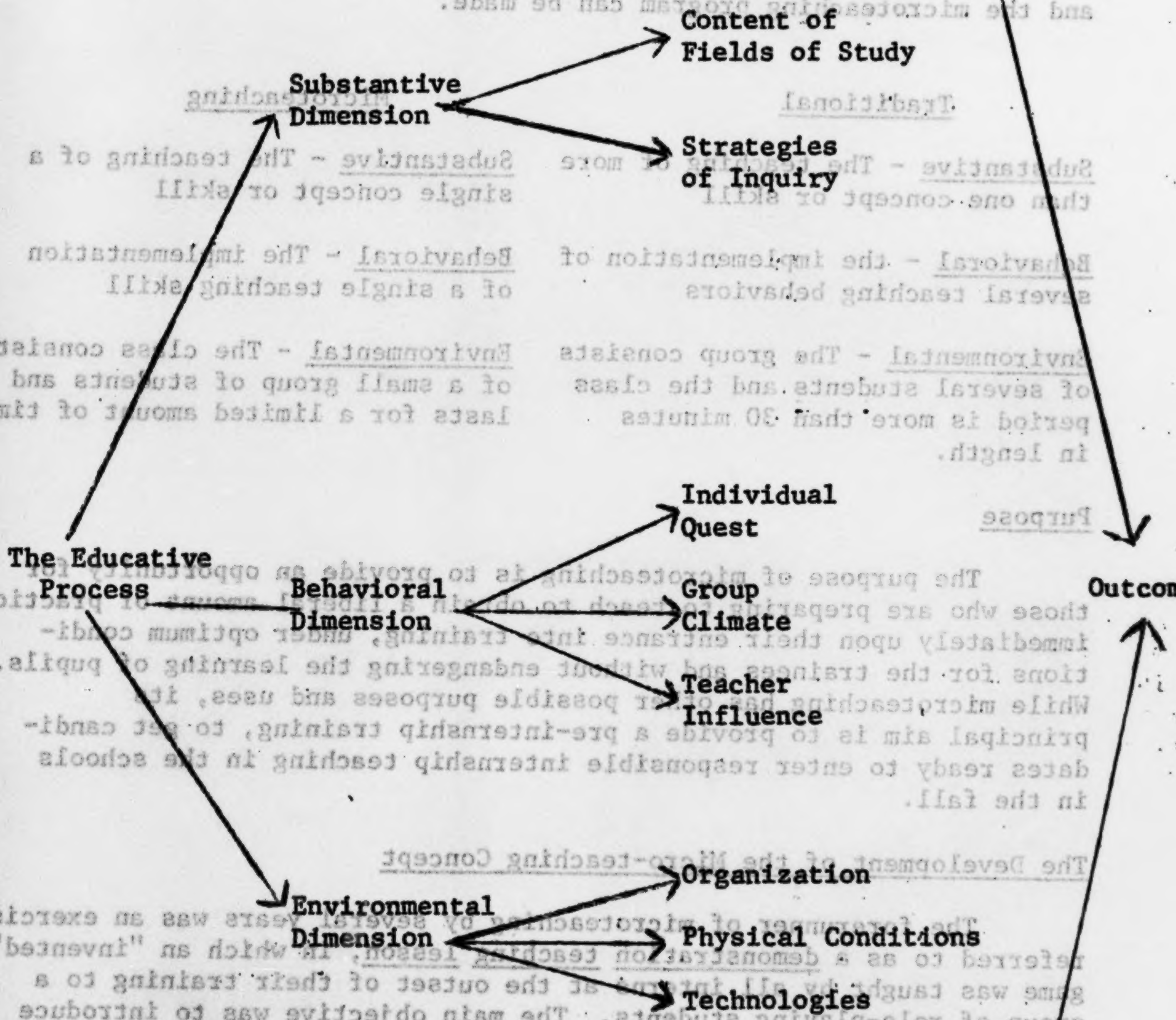
Content of Fields of Study
Substantive Dimension
Strategies of Inquiry
Individual Quest
The Educative Process
Behavioral Dimension
Group Climate
Outcomes
Teacher Influence
Organization
Environmental Dimension
Physical Conditions
Technologies

Figure 1. A model of the educative process. (Adapted from Lawrence Downy in The Secondary Phase of Education.)

One of these developments is a program of real, but scaled down, encounters with children developed at Stanford University in the Spring of 1964 called microteaching. Microteaching places the prospective teacher into a simulated classroom environment within which he teaches children specific concepts employing one or several teaching skills. When viewed with the scope of the Downy Model (Figure 1), the following comparisons between the traditional teaching situation and the microteaching program can be made.

Traditional	Microteaching
Substantive - The teaching of more than one concept or skill	Substantive - The teaching of a single concept or skill
Behavioral - the implementation of several teaching behaviors	Behavioral - The implementation of a single teaching skill
Environmental - The group consists of several students and the class period is more than 30 minutes in length.	Environmental - The class consists of a small group of students and lasts for a limited amount of time.

Purpose

The purpose of microteaching is to provide an opportunity for those who are preparing to teach to obtain a liberal amount of practice immediately upon their entrance into training, under optimum conditions for the trainees and without endangering the learning of pupils. While microteaching has other possible purposes and uses, its principal aim is to provide a pre-internship training, to get candidates ready to enter responsible internship teaching in the schools in the fall.

The Development of the Micro-teaching Concept

The forerunner of microteaching by several years was an exercise referred to as a demonstration teaching lesson, in which an "invented" game was taught by all interns at the outset of their training to a group of role-playing students. The main objective was to introduce a note of realism into the training at the very beginning, for the trainees, who for the most part, came to the program with the traditional view that prevails in a liberal arts environment, that about all that is needed for a teacher is to know his subject well. The demonstration teaching lesson proved to be a "shock treatment" that quickly, and, as we soon discovered, too powerfully demonstrated that knowing the subject is not enough.

In addition to the demonstration teaching lesson an introduction to practice was provided in regular summer high schools, where intern-trainees could serve as observers and teaching aides. At the outset of the experimental internship program it was decided to try to develop a more efficient type of preparatory practice for internship than a traditional practice teaching responsibility in a summer school which appeared to suffer from two limitations: First, substantial responsibility for teaching an entire class prior to any professional training, was judged to be premature for the trainee and questionable for the pupils enrolled, and second, the amount of time which an intern would have to invest in the practice teaching experience would be disproportionate in view of other summer training requisites.

Though the teacher aide program took less time than practice teaching and provided an opportunity for relevant pre-internship practice, this too, proved to have serious limitations, especially in the variety, depth, and evenness of the experiences available, as well as in costliness and inconvenience both to trainees and staff. Consequently, the microteaching clinic was developed to overcome some of these limitations and to increase the power of the training in the Summer.

Examples of Skills

Microteaching aims to break down the complex act of teaching into simpler components so that the learning task will be more manageable for the beginner.

When the trainee engages in a microteaching lesson in his subject, he focuses upon a specific aspect of teaching until he has developed a satisfactory minimum of skill before he proceeds to another skill. If he does not master the skill in the first lesson, he views his performance on video tape, receives a critique of it, engages in training and tries again, until he is successful.

The following nine specific technical skills which appear to be primary components for training are currently under discussion. These are not, it will be noted, mutually exclusive categories. Skill in one may depend upon, or be used to help achieve, skill in another. They each represent a rather specific phase of teaching behavior, the importance of which seems to be commonly agreed upon by experienced teachers.

1. Establishing Set

The term set refers to the establishment of cognitive rapport between pupils and teacher to obtain immediate involvement in the lesson. Experience indicates a direct relationship between the effectiveness in establishing set and effectiveness in the total lesson. If the teacher succeeds in creating a positive set, the likelihood of pupil involvement in the lesson will be enhanced. For example, one technique for inducing positive set is through the use of analogies that have characteristics similar to the concept, principle, or central theme of the lesson. By training interns in set induction procedures and having them apply these procedures in microteaching sessions, their subsequent classroom teaching is significantly improved.

2. Establishing Appropriate Frames of Reference

A student's understanding of the material of a lesson can be increased if it is organized and taught from several appropriate points of view. A single frame of reference provides a structure through which the student can gain an understanding of the materials. The use of several frames of reference deepens and broadens the general field of understanding more completely than is possible with only one. For example, the Emancipation Proclamation becomes more meaningful to the student when it is understood from the frames of references of the Northern white abolitionist, the southern white, the Negro slave in the seceded South, the free Negro, the European clothing manufacturer, the political leaders of England, and as an example of the reserved powers of the American President, than if it is simply discussed as the document issued by Lincoln which freed the slaves. Interns can be trained to become more powerful teachers as they are taught to identify many possible frames of reference that might be used in instruction, to make judicious selection from among them, and then to present them effectively.

3. Achieving Closure

Closure is complementary to set induction. Closure is attained when the major purposes, principles, and constructs of a lesson, or portion of a lesson, are judged to have been learned so that the student can relate new knowledge to past knowledge. It is more than a quick summary of the ground covered in a lesson. In addition, it pulls together the major points and acts as a cognitive link between past knowledge and achievement. Closure is not limited to the completion of a lesson. It is also needed at specific points within the lesson so that pupils may know where they are and where they are going. Experience indicates that interns can be trained in this skill.

4. Using Questions Effectively

The ability to ask provocative, answerable and appropriate questions, and thus to involve pupils actively, is one of the critical skills in teaching. The microteaching clinic has proven to be an effective means for developing this skill. Novice teachers tend to ask questions which are either so general as to be vague and impossible to answer satisfactorily or so specific that they require a one-word "fill in" response, which tends to kill further responses. This conclusion is based upon observation and analysis of more than two hundred TV recordings of classroom lessons. Exercises for use in the microteaching clinic have been devised to build proficiency in preparing and using questions: factual, conceptual, thought-provoking, discussion-stimulating, heuristic questions. The procedure is, first, to instruct the intern in skillful questioning techniques and then to have him view video-tape demonstrations of skillful practice. He then applies these techniques in microteaching sessions. Through supervisor and student feedback, and by viewing video-tapes of his practice sessions, the intern is helped to correct faulty responses and to consolidate his effective practices.

5. Recognizing and Obtaining Attending Behavior

Interns can be trained to become more sensitive to the classroom behavior of pupils. The successful experienced teacher, through visual cues, quickly notes indications of interest or boredom, comprehension or bewilderment. Facial expressions, directions of the eyes, the tilt of the head, and bodily posture offer commonly recurrent cues which make it possible for the skilled teacher to evaluate his classroom performance according to pupil's reactions. He can then change his "pace", vary the activity, introduce new instructional strategies as necessary, and improve the quality of his teaching. Unlike his more experienced counterpart, the intern teacher has difficulty perceiving and interpreting these visual cues. Through 16mm motion picture films, and 35mm still picture protocols of classrooms, and video-tape recordings of interns in microteaching sessions, supervisors are able to sensitize interns to visual cues of pupils' attending and non-attending behavior.

6. Control of Participation

Microteaching sessions enable interns to analyze the kinds of pupil-teacher interaction which characterize their teaching. Control of pupils' participation is one important variable in the successful learning for the pupils. Microteaching sessions provide an opportunity for interns to practice different techniques for encouraging or discouraging classroom interaction and to gain insight into the causal relationship between a series of teacher-pupil interactions. When an intern develops the skill to analyze and to control the use of his accepting and rejecting remarks, his positive and negative reactions, his patterns of reward and punishment, he has taken a major step toward effective teaching.

7. Providing Feedback

The feedback process in the training of teachers may be simply stated as providing "knowledge of results." Interns often ignore the availability of information accessible during the lesson. Questioning, visual cues, informal examination of performance, are immediate sources of feedback. Interns can be taught appropriate techniques to elicit feedback from students to modify their lesson accordingly. Teachers unconsciously tap a variety of feedback sources but unless they are sensitized, they tend to rely unevenly on a limited number of students as "indicators" and to rely on a restricted range of feedback cues.

8. Employing Rewards and Punishments (Reinforcement)

Reinforcing desired pupil behavior through the use of reward and punishment is an integral part of the teacher's role as director of classroom learning. Substantial psychological evidence confirms the value of reinforcement in the learning process. The acquisition of knowledge of specific techniques of reward and punishment and the development of skill in using them appropriately in specific situations is most important in training a beginning teacher. Experience indicates that interns can acquire skill through micro-teaching practice in reinforcement of pupil learning.

9. Setting a Model

The importance of analyzing and imitating model behavior is a basic assumption supporting the use of observation in a training program. Because of the brief, simple character of the micro-teaching situation it is possible to provide good models of specific technical skills as an integral part of training. Models can be brief and relatively focused, hence more easily analyzed and imitated. Two levels of skill can be identified. The ability to analyze behavior and the ability to imitate it successfully. The hypothesis, as yet untested, is that interns can be trained to improve their ability to analyze and imitate teaching models. Such skills, it is reasoned, will open a wider range of alternatives and provide for more effective self-perception.

In subsequent years, the Stanford Teacher Education Project devoted much effort toward refinement and further development of the microteaching approach to professional education. As a result of such endeavors, they consolidated the above nine skills into the following list of seven.

1. Reinforcement
2. Varying the Stimulus
3. Presentation Skill - Set Induction
4. Presentation Skill - Lecturing and use of A-V
5. Illustration and Use of Examples
6. Presentation Skill - Closure
7. Student-Initiated Questions

By employing a pre-posttest design they recently collected and analyzed data concluding:

1. The difference between supervisor and student ratings on reteach lessons was demonstrated. Our conclusions from previous micro-teaching clinics were sustained again - that student ratings are probably a more accurate measure of behavior change than the supervisor ratings.

2. Only one significant change occurred between lessons 1 and 2 (Reinforcement skill) but in both cases when there were lessons 3 and 4 for a technical skill, significant improvement occurred. This suggests that perhaps one teach-reteach cycle is not enough to obtain significant behavior change, and that an additional teach-reteach cycle for each skill might be necessary in order to achieve significant improvement.

3. Although the validity and reliability for the specific evaluative technical skills instruments have not been established; they probably offer more face validity for measuring teaching behavior change on the particular skill than does the more global Stanford Teacher Competence Appraisal Guide. More development of these instruments should prove profitable for future

micro-teaching training clinics. Training in the use of the Appraisal Guide and the specific technical skills instruments is strongly recommended for both supervisors and students.

4. Last year's micro-teaching clinic showed few significant changes between the teach and reteach lessons as measured by students' ratings. It was hypothesized that this was due to the fact that interns were required to reteach immediately upon the completion of the critique session with the supervisor. It was thought that if the interns had a fifteen-minute break between the teach and reteach lessons they would have more time to replan their lessons in order to improve on the reteach. The results were mixed. Improvement was made between lessons 3 and 4 (teach-reteach) when there were two teach-reteach cycles (reinforcement and Varying the Stimulus) and between lessons 1 and 2 for Varying the Stimulus, Illustrating the Use of Examples, and Student-Initiated Questions. This should not be taken to mean that the fifteen minute preparation was ineffective, however. Another possible explanation for the lack of improvement in lessons 1 and 2 has already been noted above under #2. The fifteen minute preparation time should be and will be further investigated in the Micro-Teaching Clinic, 1967.

5. The video-tape recorder plays an important role in the supervisory process in micro-teaching. The staff at Stanford is convinced that the most inefficient use of the video-tape is to replay the entire lesson and just sit and watch it. The supervisor needs to point out the specific things (not more than one or two) on which he wants the intern to focus. He needs to replay small segments to emphasize or clarify certain points. In other words, a training course should be required of the supervisors in order to make the most effective use of the video-tape in the supervisory process.

As information concerning the structure and implementation of the micro-teaching concept in professional education programs diffused throughout the nation, several institutions incorporated either the total program or variations thereof into their respective pre-service curricula. One such program was undertaken at

Brigham Young University under the leadership of Dr. W. Dwayne Bell.

Brigham Young University is one of the largest teacher training institutions in the country, but is located in a relatively low population area. There is a constant problem to locate enough student teaching stations for 500 student teachers each semester. In an effort to alleviate this problem, members of the teacher education department have investigated several innovations, adapting some of them to their particular program. One of these is micro-teaching - a recent development in teacher education in which a miniature teaching situation is created under controlled conditions. The uniqueness of micro-teaching consists of two elements: (1) the ease with which the teaching situation can be controlled and manipulated, and (2) the availability of immediate feedback for the student teacher.

In many institutions, micro-teaching is used in a one-to-one relationship--involving only the student teacher, his college supervisor, and the micro-class. However, due to the large number of prospective teachers to be trained at Brigham Young University, micro-teaching has been expanded to include the trainee's classmates. This group assists the college instructor in the evaluation of the micro-teaching done by each member of the class. It is felt that having the class observe and critique fellow trainees has several advantages. Among them are the following:

1. Observing others teach and discussing their performance broadens the experience of the observer and, therefore, lessens the number of actual presentations required by each trainee to alter his own teaching behavior.

2. Use of the trainees as observers expands the evaluation process and sensitizes each trainee to assess his own teaching behavior more critically.

3. Having a group observe the lesson presentation usually results in a variety of creative approaches for presenting similar lessons or concepts.

These purposes will be reached through the following specific objectives:

1. To provide the trainee contact with the referents--teaching, role development, and behavior analysis.

2. To provide the trainee with teaching practice in a controlled situation.

3. To provide the trainee with immediate feedback on his performance.

4. To provide the trainee with an opportunity to observe himself in action in a teaching situation and to discuss his observations with a supervisor and with the pupils he has taught.

5. To provide the trainee with an opportunity to plan for correction of specific weaknesses and to carry out these plans in practice and reteaching sessions in the miniature classroom.

Description of the Program at Brigham Young University

Micro-teaching at Brigham Young University consists of the presentation of a lesson by a student teacher to a "class" of students from the local public schools. When these students are not available, the micro-class is composed of his peers from the college class. The trainee's college instructor, the other members of his college class, and the micro-class themselves evaluate his teaching performance. The entire presentation is video taped and replayed immediately so the trainee can see himself in action.

A typical micro-teaching session in a secondary methods class for example, would proceed as follows:

The student teacher, having been scheduled beforehand, would be prepared to present a four to eight minute lesson to a "class" composed of three to five local high school students. This brief presentation would have as its aim the teaching of a single, specific concept. It would be intended as a self-contained lesson and not simply the first few minutes of a longer segment. With the student teacher and the volunteer "class" are the other members of the trainee's teacher education class and the course instructor. Occasionally, a second instructor is present to assist in the evaluation.

As the student teacher presents his lesson, his performance is recorded on video tape. A television monitor operates during the taping, allowing the cameraman to adjust his shooting angle or focus. The instructor-evaluator observes the trainee's teaching effort critically and jots down suggestions for improvement and commendations. At the conclusion of the lesson, the "class" members and the college class complete forms evaluating the trainee's performance.

To begin the evaluation, the instructor and the trainee discuss, in a general, usually positive way, the performance. The instructor may make suggestions about what to look for during the video tape playback. As the video tape is replayed a particular segment may be replayed or a "stop action" process may be used if desired. The trainee, the instructor, and college class observe it and comment freely. Occasionally the high school students are invited to participate in the oral evaluation. (Interestingly enough, it is often the comments of these latter students which are seen by the trainees as being most beneficial.). Specific suggestions for improvement are sought by the instructor. Such suggestions often are made first by the trainee himself. Practice at this point varies depending on the needs of the trainee as perceived by the instructor-evaluator. Some trainees benefit more from constructive criticism--others from positive re-enforcement.

One of the aims of the evaluation session is to prepare the trainee to reteach his lesson. At the conclusion of the discussion and critique, the course instructor, together with the student teacher, decide upon one or two areas of major difficulty on which the student will concentrate in his next presentation. Sometimes this presentation is made immediately after the evaluation, other times it is from one day to a week later. The reteaching always is done with volunteer students other than those who participated in the original "class". This "reteach" segment is video taped and all other conditions are as they were for the initial presentation. Again, evaluation forms are filled out by the micro-class and by the trainee's fellow students. The evaluation of the "reteach" portion of micro-teaching is briefer than the initial evaluation--concentrating mainly on the particular improvements which the trainee was attempting.

Evaluation

Micro-teaching sessions following the pattern described above have been used at Brigham Young University for one year on an experimental basis.

It is possible to draw several tentative conclusions about the effectiveness of micro-teaching as it is currently utilized at BYU:

1. Micro-teaching, with its provisions for immediate feedback and for self-observation by students offers a unique opportunity for individualized instruction of teacher trainees.

2. Micro-teaching is valuable in introducing the trainee to different types of classroom situations or problems. Segments of classroom interaction can be taped elsewhere or difficulties can be "staged" by the pupils of the miniature class. As his areas of weakness are identified and opportunities given him to react to similar situations and problems several times, the trainee gains confidence and skill in handling these situations effectively.

3. Much emphasis is currently being given to the teacher's self-concept and his resulting ability to be an effective person in the classroom. The use of video tapes in micro-teaching enables the trainee to see himself as he interacts with a group of students and to arrive at some conclusions in regard to his effectiveness in the teaching situation.

4. Judging from the responses obtained on questionnaires administered at the conclusion of the micro-teaching sessions, 96 per cent of the trainees indicate that they are benefited by the experience.

5. Trainees agree that comments and suggestions made by their fellow student teachers are definitely valuable.

6. Performance of students (as judged by supervisors, classmates, and the pupils they teach) is usually improved--sometimes to a great extent--following the evaluation session and video tape playback.

Proposed Research

Permission has been requested from the Utah State Department of Public Instruction to conduct controlled research involving the substitution of micro-teaching sessions for 50 percent of the student teaching time now required by Brigham Young University. Pilot studies will be initiated. Full scale research will continue for four or five successive semesters. In this study, it is hypothesized that:

1. There will be no difference in performance ability of

the teaching act between two groups of preparing teachers, one of which has completed student teaching for a full day for eight weeks, and the other of which has done student teaching one-half day for eight weeks and in addition has taught in five micro-teaching sessions and has observed other micro-teaching sessions 30-50- times.

Video tape recordings of the student teacher's performance before a class will be made of each experimental and control group member at the beginning of the student teaching block. At the end of student teaching, video tapes will again be made. In both the pre and post sessions, three taped segments will be obtained, providing a total of six video tapes per student teacher. These recorded acts of teaching will be mixed randomly--as to pre and post condition and as to control. Evaluations would be made by the teacher, a college teacher supervisor, and a public school supervisor. Such evaluation will examine teaching performance in four areas:

1. Involving class members in the lesson.

2. Asking questions.

3. Classroom management.

4. Providing for contact with the referent or appropriate vicarious experience.

Several scales designed to measure attitude in the appropriate area will be administered as pre and post instruments to each member of experimental and control groups. Changes over time and between groups will be evaluated.

Dr. Warren Kallenback at San Jose State College studied the effectiveness of microteaching in the preparation of elementary intern teachers.

The study was designed to demonstrate whether or not two randomly assigned groups of elementary intern teaching candidates differed significantly in selected teaching skills and overall teaching competence after one group had completed a summer micro-teaching program and the other had completed the regular summer classroom observation and student teaching program and whether these relationships, if any, persist in the field.

The microteaching program, requiring far fewer hours than the student teaching program, is logistically more feasible for the students and staff of the college. If the outcomes of research studies favor the microteaching program or show no significant differences between them and student teaching programs, then teacher education planners can select between programs on the basis of economy.

A. Hypotheses

The primary hypothesis was that there would be no significant differences in teaching skills and overall teacher competence of the two randomly divided groups of pre-service elementary intern teachers either (1) at the end of the summer program or (2) during the regular school year.

Other data analyzed were as follows:

1. That there would be no significant differences between the groups in demographic factors; age, sex, marital status, grade point average, or previous teaching experience (some had had one semester of student teaching).

2. That there would be no significant differences between total scores of the judges or teams of judges using the teacher competence instruments of the study.

B. Method of the Study

The experimental design was as follows:

	Pre-service	Inservice
Microteaching Group:	R O_1 X_1 O_1	O_1 O_2 O_1 O_2
Student Teaching Group:	R O_1 X_2 O_1	O_1 O_2 O_1 O_2

Where R equals randomly assigned group, O equals observation with a given measuring instrument or instruments, and X equals the introduction of the experimental variable or variables which, in this study, were the Microteaching Program (X_1) and the Student Teaching Program (X_2).

The independent variable was the score from the Diagnostic Lesson evaluations. The dependent variables were the scores from the Criterion Lesson and the field study evaluations.

The study population was the elementary intern teaching candidates (N=40) selected by the San Jose State College Intern Selection Committee in the spring of 1966. This population was randomly divided into two groups.

Immediately after the summer program commenced, each intern presented a five-minute Diagnostic Lesson which was recorded on videotape. Each intern chose his own topic for the presentation.

Each group followed the regular summer program of methods, curriculum and learning theory courses with the exception of the administration of the experimental variables, the Microteaching Program, and the Student Teaching Program.

At the end of the summer program, each intern again presented a five-minute lesson of his own choice which was again recorded on video-tape.

These videotaped teaching episodes were transferred (dubbed) in random order onto a third set of tapes which served as the basis for judgements of teaching skills by two teams of trained evaluators using the Stanford Teacher Competence Appraisal Guide (STCAG). All judging was double-blind.

Field evaluations were conducted by a team of evaluators trained in use of STCAG and Instrument for the Evaluation of Teaching Activities (IOTA). The instruments were administered two times each.

Tests of significance were made between and among the variables of the study, and correlations were made between selected variables.

C. Results

No significant difference was found in teaching skills between the Microteaching and Student Teaching groups at the end of the summer. The same finding was demonstrated in the field follow-up studies.

It was found that the Microteaching group differed significantly from the Student Teaching group in the Diagnostic Lessons (the Pre-Tests). The difference was at the .05 level and favored the Student Teaching Group.

There were significant positive agreements between the summer STCAG, and the STCAG and IOTA field observer teams, each of these having been trained in judging until a ninety per cent level agreement was reached between evaluators. An interrater reliability check was conducted in the spring with the principal

IOTA evaluator and another trained evaluator, and the correlation coefficient obtained, .74, is significant at the .01 level (df-10).

No significant differences were found between the Microteaching and Student Teaching groups' scores on the basis of age, sex, GPA, prior teaching experience, or marital status.

D. Discussion

The null hypothesis can be accepted for the summer microteaching results, viz., that no significant difference would occur between the Microteaching group and the Student Teaching group as judged from their post-summer Criterion Lessons. Likewise, no significant differences appeared between groups in the fall and spring semester follow-up studies. The latter studies involved two independent teams of evaluators, one team using the summer evaluation instrument, STCAG, and the other using IOTA.

The fact that the Microteaching group was judged by one team of judges to be significantly less capable than the Student group at the beginning of summer probably adds weight to the value of the microteaching program. For, if less able teaching candidates can achieve equality via microteaching with other more capable candidates by the end of a summer program, then the Microteaching Program has merit in addition to a far greater economy of candidate and staff time. Although informal measures determined that the Microteaching group had fewer teaching problems at the beginning of school and was given higher commendations by their principals and supervisors, no formal assessments were made until mid-October 1966.

Some authorities on microteaching feel that the benefits of microteaching are apparent for only the first few weeks of teaching, and after that, several other factors may contribute significantly to strengthening or changing teaching skills.

Multiple significances tests and correlations were run between and among the scores of the evaluators. Most of these reached significance; some did not. There is probability of some Type I errors where interrater correlations are low. There is also the probability of some findings appearing as significant due solely to change. The low interrater reliabilities during the observations suggest either that the judges drifted apart in their conceptualizations or that the behaviors observed were too complex for highly interrelated judging.

E. Conclusions

Elementary intern teaching candidates participating in the Microteaching Program prior to their first year of teaching are equally capable in teaching skills as are candidates who participate in the summer Student Teaching Program. This is maintained into and throughout the teaching year.

Both groups achieved satisfactory beginning teaching skill and teacher competence levels by the end of summer, and this ability was maintained, increasing slightly, throughout the teaching year.

Both groups achieved satisfactory levels (for beginning teachers) on the teacher competence appraisals; some (N=7) reaching superior levels on IOTA. While more of the Microteaching group reached the superior level on IOTA in the fall, this difference was not significant and was not present by spring. The same was true for those judged to be in the lower competence levels (N=9).

The judging of the Criterion Lessons probably should have demonstrated the Microteaching group as superior to the Student Teaching group inasmuch as they spent time during the summer in Microteaching sessions. Yet they did no better than the Student Teaching group at the end of summer. In a way, they did no better, as they may have begun at a significantly lower level of teaching skill. It may be that the summer instruction and supervisor reinforcement was not specific enough in the teaching skills to be mastered.

One researcher has shown that instruction sheets plus discussion of a given teaching skill has been demonstrated to be most effective if incorporated in a microteaching session critique that includes positive intermittent reinforcement by the supervisor plus his pointing out of salient cues during the video tape playbacks.

The study demonstrated that elementary intern teaching candidates can be just as effective after a summer Microteaching Program as candidates in a regular summer Student Teaching Program and achieve this objective at a very considerable savings in time for staff and intern candidates.

A few additional programs incorporating microteaching into their professional education programs are under review. The afore mentioned programs are representative of the nature of the rationale employed in the vast majority of those preservice programs employing microteaching. They are designed to incorporate the following dimensions:

1. An intensive effort to get pre-service teachers actively involved in the teaching-learning process hopefully with students of the age group they intend to work with.

2. A conscious, determined effort to state both teacher and student desired outcomes in behavioral terms.

3. An evaluation based upon the behavioral objectives formulated as outlined in section 2 above. This evaluation yields a solid data base upon which assessments of the lesson can be made, suggested alternatives can be formulated and examined and future organizational plans formulated. Such an empirical data base is the main source of strength of this program of preservice education of teachers.

4. While not universally incorporated in microteaching programs, researchers in this area have identified some teaching skills which hopefully will lead them toward the development of a theory of teaching.

Microteaching not only provides an effective environment within which pre-service professional teacher education can assume greater effectiveness, but it may be employed by educators as a research strategy which provides a semi-field atmosphere which may well lend new meanings to their data analyses.

Studies conducted at Arizona State University and the University of Connecticut under the directorship of Dr. Robert Schuck provide an example of the incorporation of microteaching in a research strategy. These studies were conducted to assess the effect of a skill identified in the Stanford microteaching clinics (Set induction) upon student achievement, retention and determination of effective teaching.

Specifically these studies sought to answer the following questions:

1. Will ninth grade pupils taught by teachers trained in set induction techniques make significant gains in achievement over those taught by teachers who have not been so trained?
2. Is there a significant difference in the ratings ninth grade pupils give teachers trained in set induction procedures regarding teacher effectiveness over those given to teachers not trained in set induction procedures?

3. Will ninth grade pupils taught by teachers trained in set induction techniques retain the material taught to a significantly greater degree than pupils who have been taught by teachers who have not been so trained?

4. Does a significant correlation exist between the ratings ninth grade pupils give their teachers on the Teacher Demonstration Rating Form and the achievement and retention these pupils register on a pretest, posttest design?

The Experimental Design

The experimental design employed in this study was the Pretest-Posttest Control Group design. This design was incorporated in the following manner:

Pupil Sample

A volunteer population of high school pupils were solicited for this study. The total population of pupils used was 180. These groups were then randomly divided into 18 groups numbering 10 pupils per group. This resulted in the establishment of a total of 18 separate groups numbering 10 pupils per group.

Teacher Sample

The teacher population consisted of 18 education majors who had not taken any methods courses, nor had they been exposed to the student teaching experience. these teachers were volunteers who responded to a letter requesting their participation in the study. This letter was sent to each of the students in the College of Education.

Each of the 18 teachers participating in the study was assigned at random to one of the pupil groups already established. In turn, each of the groups and the teacher assigned to that group was randomly assigned to either the experimental or control procedure.

Curriculum Assignment

The BSCS Curriculum to be used by each teacher in instructing the pupils assigned to them was determined at random. This resulted in having three teachers instruct ten pupils each in the BSCS Blue, Green and Yellow Versions in both the experimental and control groups.

A unit on respiration was employed because of its non-controversial nature and the fact that the twelve instructional periods employed in the design exceeded the instructional time allotment recommended by the BSCS program.

Summary of Design

The actual implementation of the design chosen resulted in a high degree of random assignment. All of the following assignments were done by employing random procedures:

1. Pupils to groups of 10 each.
2. Teachers to each of the pupil groups formed.
3. Pupil-teacher group to be used in the experimental or control procedure.
4. The unit on respitation in the BSCS Curriculum to be used to each teacher-pupil group.

The findings of this study may be summarized as follows:

1. Pupils within the experimental group made statistically significant mean gains on the Achievement Test (.01 level) over those in the control group.
2. Teachers within the experimental group received statistically significant higher ratings on the Teacher Demonstration Rating Form (.01 level of confidence) than the teachers in the control group.
3. Pupils within the experimental group made statistically significant gains on the retention test. (.01) over those in the control group.
4. The correlation between those students recording high achievement and retention gains and their ratings of teacher effectiveness were statistically significant (.01 level of confidence) within both the experimental and control groups.

Conclusions

1. Teachers who are trained in the deliberate use of set induction techniques in their instructional strategies will be viewed by their pupils as being significantly more effective.

2. Pupils taught by teachers trained in the deliberate use of set induction techniques will achieve significantly higher than those exposed to teachers not trained in this instructional skill.

3. Pupils who view their teachers as effective tend to make greater gains in achievement and retain material taught better.

Summary

Since the advent of the microteaching concept at Stanford University in the summer of 1965, this program of scaled down teacher student interaction has stimulated research interests of professional educators. As a result of several research programs data has been collected and upon analysis has indicated the value of some form of incorporation of microteaching into pre-professional education programs. A few of the varieties of this incorporation have been reviewed.

In addition microteaching holds promise as a research strategy which can be employed by investigators interested in the area of patterns of instruction. An example of this strategy can be seen in the study pertaining to the effects of set induction skills upon pupil achievement, retention and assessment of effective teaching outlined earlier. While the form and substantive dimension of microteaching appear to be shifting in relation to the objectives of those wishing to research and implement it into their programs, the fact is that its presence on the educational scene appears to be a certainty for the foreseeable future.

Supervisory Conference Procedures in Student Teaching Program Number Three

This program provides microteaching experience immediately before students begin student teaching in assigned schools. The program focuses on technical skills which are discussed and modeled on video-tape in a methods course taken the first half of the semester in which student teaching begins. After each skill is presented in class, students schedule ten minute lessons, taught to five university freshmen and video-taped. Each lesson concentrates on the skill of concern in that portion of the methods course. A supervisor watches the lesson in progress and confers with the student teacher about it as the video tape is played back immediately after the lesson is concluded (before the conference begins, pupils complete an evaluation form which is then available to the student teacher and supervisor for consideration).

List of Supervisor Behaviors in a "Typical" Conference (Program Three)

1. Supervisor and student teacher look at pupils' evaluation.
2. Supervisor asks student teacher to interpret and react to pupils evaluation.
3. Supervisor suggests looking at video tape.
4. Supervisor asks student teacher to discuss his technical skill procedure.
5. Supervisor interprets pupil evaluation concerning technical skill.
6. Supervisor suggests looking at tape, turns on video tape recorder and looks;
7. Supervisor suggests procedural alternatives.
8. Supervisor focuses student teacher's attention on aspects of taped lesson--"watch what happens when...".
9. Supervisor replies to student teacher request for suggestions.
10. Supervisor moves tape along (fast forward) to other segments of lesson after asking student teacher if he wants to see anything more on part then playing.
11. Supervisor summarizes, gives suggestions.
12. Supervisor explores student teacher's interpretation of how pupils responded.
13. Supervisor introduces technical skill for next week.

Interpretative Expansion of Supervisor Behaviors in The "Typical" Conference (Program Three)

1. Based discussion on data provided by pupils and video-tape.
2. Provided student teacher with supervisor's interpretation of data.
3. Viewed tape with student teacher.

4. Picked certain parts of tape for comment and analysis.

5. Asked for explanation and interpretation of teaching by student teacher.

6. Kept conference moving at a rapid pace.

7. Kept focus on the specific skill under development.

8. Provided somewhat mechanical support of student.

9. Provided rather prescriptive and directive suggestions.

10. Made evaluative and judgmental statements.

Analysis and Summary of Supervisor Behavior in the "Typical" Conference (Program Three)

Supervisor behavior very business-like. No attempts at supportive, reflecting, Rogerian-type behavior in evidence. Data from student perception and student performance used as base of discussions along with video tape of student teacher's micro-lesson. Many evidences of defense producing behavior by supervisor, "You should have...", etc, with much defensiveness on part of student teacher, putting blame for poor performance on either "time factors," "poor preparation," "using or not using the model," or the "instruction sheets." Evidence of the "Good, but,..." syndrome in supervision. Praise used by supervisor for "being like the model." Some difficulty in getting student teacher to recognize non-model, non-specific skill problem, i.e., use of "public criteria" during direction giving lesson. Some evidence of "compliant" behavior on the part of student teachers.

Perhaps the most observable characteristic of the Program Three Conferences was the use of data. In these conferences both student achievement data and student perceptions of the teacher were explored. There was a noticable dearth of verbal behavior and a degree of defensiveness which could have occurred as a result of skill training. The supervisors were almost automatic in their reinforcement behavior and appeared as a rule quite impersonal. Emphasis in the conference was upon clarifying the lesson objective into a behavioral one, explaining the criticisms of the students, and references to a model which the trainee had observed. The conferences were hurried, to the point, and very data oriented. The supervisor was ready to offer an alternative suggestion for each criticism.

Supervisory Conference Procedures in Student Teaching Program Number Four

This program provides essentially the same kind of microteaching experience as Program Three but during the summer before students enter student teaching (except that secondary school pupils rather than college freshmen form the classes). The conferences examined here took place after the summer microteaching experience and while student teachers were teaching in schools during the fall semester. Some of the lessons dealt with in the conferences were video taped and viewed by the supervisor before the conference or with the student teacher during the conference. Other conferences were about lessons observed "live" by the supervisor. Each of these models is used in Program Four as the supervisor sees fit.

List of Supervisor Behaviors in a "Typical" Conference (Program Four)

1. Supervisor listens to student teacher's general description of lesson, teaching problems.
2. Supervisor raises problems, asks student teacher to explore.
3. Supervisor accepts student teacher exploration.
4. Supervisor suggests procedural solutions.
5. Supervisor itemizes and organizes information given by student teacher for his uses in interpretation.
6. Supervisor restates discussion to this point then focuses by directing student teacher attention to other problems.
7. Supervisor asks questions implying his preferred procedure.
8. Supervisor asks student teacher how representative lesson he saw was of past lessons.
9. Supervisor describes lesson from his data, interprets, makes suggestions for future.
10. Supervisor suggests procedure.
11. Supervisor asks student teacher to explore his analysis of video tape and to focus on technical skills in that tape.
12. Supervisor discusses aspects of video tape as initiated by

student teacher - aspects do not deal with technical skills.

13. Supervisor asks about general future procedure.

Interpretative Expansion of Supervisor Behaviors in the "Typical" Conference (Program Four)

1. Rapport establishing behavior
  a. verbal
  b. non-verbal

2. Posed questions which encouraged students to express their feelings about their teaching situation.

3. Directed focus toward social climate of classroom.

4. A general reluctance to make evaluative or judgmental statements.

5. A general reluctance to provide specific technique or methodological suggestions.

6. Directed student questions and concerns back to students for reflective analysis and alternatives.

7. Provided support of student responses and analyses through verbal and non-verbal cues.

8. Encouraged discussion and analysis of motivational problems and techniques.

9. Gave some content and methodological suggestions.

Analysis and Summary of Supervisor Behavior in the "Typical" Conference (Program Four)

Supervisor behavior heavily oriented toward social-emotional - supportive climate dimensions, many reflections, much use of "uh huh" type agreement, many non-verbal reinforcing cues. There were many attempts to "draw out" the student teacher, student teacher did much of the talking; suggestions given by supervisor toward end of conference only. Very process oriented; when data was asked for, it was primarily of the "case study", process type. Little mention of specific skills, but much inferred by student teacher. Long and rambling discussions held--therapeutic in tone.

Perhaps the most observable characteristic of the Program

Four Conference was the therapeutic nature of the interaction. The supervisor assumed a Rogerian role and ellicited verbal behavior from the student teacher reinforcing the trainees use of data and offering sympathy when failure was mentioned, while reinforcing the trainee for success. The Program Four conference centered around the use of data in the classroom and relied upon the interview with the intern to disclose this use of data. The data in question was more of the case study type of data than the frequency count variety. The supervisor focused upon "why do you think they reacted like that" type of questions. Observable in the conference was a high incidence of supervisor verbal behavior. Part of this could result from the time of the year in which the tapes were taken, since skill training had already occurred in the summer. The supervisor was warm, interacted on a non-interfering basis, and tended to hold suggestions until near the end of the conference.

IV. Conclusions and Recommendations

Supervisory approaches within the frameworks of interaction analysis and microteaching have been receiving growing attention from educators in recent years. This study examined and presented some of the current research relating to these concepts of supervision as applied to student teaching programs. Four supervisory conferences in each of four such programs were video taped for analysis by a panel of experts, and information about supervisory conference procedures and behaviors in these programs was presented. The following conclusions may be drawn from the results of this study:

1. Interaction analysis and microteaching have been successful in achieving specified behavioral changes in the teaching behavior of student teachers.
2. There is a substantial variation in supervisory conference procedures and behaviors from program to program within the interaction analysis and microteaching approaches.
3. Conference procedure and behavior varied less among supervisors within each program than it did among the programs examined.

It is recommended that the results of this study be made known to practitioners who work with student teachers. Dissemination may be effected in some of the following ways:

1. An abbreviated version could be distributed to members

of the Association for Student Teaching.

2. Groups of practitioners wishing to utilize procedures or behaviors could consult with personnel involved in this study for assistance and training.

3. The universities whose programs were examined could be directed toward examination of the raw data from conference analyses for their self-study if they so desire.

4. Using the findings as a base, a training film could be prepared for use by supervisors of student teachers who wish to adopt some of the techniques studied.

APPENDIXES

Appendix A

Sample of Letters to Universities

October 16, 1968

Dr. William Johnson
Office of Student Teaching
College of Education
University of Illinois
Champaign-Urbana
Illinois

Dear Dr. Johnson:

I am directing a U.S.O.E. research project studying supervisory approaches with student teachers using micro-teaching as a vehicle. One of the major objectives of the project is the description of supervisory techniques through the analysis of video-taped supervisory conferences; my consultants have indicated that the program at the University of Illinois would be a good one to visit.

I should like to visit Champaign on February 24, and February 25, to tape four complete supervisory conferences with student teachers within the micro-teaching framework. If you would be able to have me visit, please let me know, and I will send you more information about the project with a letter confirming my anticipated arrival time.

Sincerely yours,

Donald P. Johnston
Coordinator of Pre-Student Teaching
Laboratory Experiences

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November 27, 1968

Dr. Bill Johnson
Office of Student Teaching
236 Education Building
College of Education
University of Illinois
Urbana, Illinois 61801

Dear Dr. Johnson:

I appreciate your interest in the study I am directing. Since the major objective of the study is to provide practitioners with information about the successful use of micro-teaching and interaction analysis in student teaching programs, we are recording supervisory conferences on video tape for descriptive analysis by the project consultants. The program at University of Illinois, because of its interesting utilization of research findings in the area of micro-teaching, has been selected as one of the programs to be studied.

I should like to tape four real supervisory conferences at University of Illinois in which the supervisor uses data obtained in a micro-teaching framework to help a student teacher improve his teaching. The conferences should be representative of your program, and both the supervisor and student teacher should be willing to be video-taped during the conference (to minimize artificiality, I shall arrange my equipment so that I do not need to be present while the conference is being taped).

I shall arrive in Urbana on Tuesday, February 25, 1969, and appreciate your willingness to help me by making the arrangements necessary for the kind of work I outlined above. I am enclosing an outline of the present study for your reference. Please let me know if I can do anything to make my request more clear or the contingent arrangements more acceptable to you.

I feel sure that information about your program at University of Illinois will provide useful alternatives for other supervisors of student teachers and am looking forward to my visit with you.

Sincerely yours,

Donald P. Johnston
Coordinator of Pre-Student
Teaching
Laboratory Experiences

DPJ/es
Enclosures

Appendix B

Comparative Overview of Conference Technique

AREA	PROGRAM ONE (INTERACTION ANALYSIS)	PROGRAM TWO (INTERACTION ANALYSIS)	PROGRAM THREE (MICROTEACHING)	PROGRAM FOUR (MICROTEACHING)
Focus on process behaviors	In terms of interaction analysis	Light emphasis	Specific one skill, etc.	General
Content focus	Special in terms of student-formed objectives	Heavy emphasis	Some focus but rather incidental	General in nature
Case study approach	Moderate in terms of objectives formed	None	None	Heavy emphasis
Data base used in analysis	All data in interaction analysis matrix	Heavy-rooted in student teacher reaction to content; questions determined by supervisor and student teacher	Heavy-based on pupil evaluation of student teacher behavioral skills	Little-appeal more generally guesses about "why" in terms of case study
Rapport building attempt	Definite part of model	Depended upon supervisor	Depended upon supervisor	Definitely part of the model
Formulation of lesson objectives	Heavy emphasis on student teacher formulation	Behavioral-formed by student teacher subject to approval of supervisor	Required by upervisor; little student teacher participation	Heavy emphasis on student teacher formulation
Did it appear that supervisors were trained in a certain method?	Yes	Yes	Yes	Yes
Appeal to data for conclusions	Heavy	Heavy	Moderate; lots of supervisor projection	Light if any
Scope of conference focus	Broad	Narrow	Narrow	Very broad

Appendix C

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